**Training Course in MCH Epidemiology**

**Denver, June 2012**

**Choosing an Analytic Approach Exercise**

A group of researchers is interested in the impact of maternal smoking on infant birthweight. Several companion studies are being conducted. **CIRCLE ALL THAT APPLY.**

1. Which statistical approach(es) would be appropriate for analyzing the following data:

|  |  |
| --- | --- |
| Explanatory/Independent Variable(s) | Outcome/Dependent Variable |
| Maternal Smoking: > 40 cigarettes per day  20-39 cigarettes per day  1-19 cigarettes per day  Nonsmoker | Birthweight < 2500 grams: Yes  No |

* + 1. Ordinary Least Squares Regression
    2. Binary Logistic Regression
    3. Log Binomial Regression
    4. Cumulative or Generalized Logit
    5. Ordinary Least Squares Regression –Random Effects/GEE
    6. Ordinary Least Squares Regression –Hybrid Model
    7. Binary Logistic Regression – Random Effects/GEE
    8. Binary Logistic Regression – Hybrid Model

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| Maternal Smoking: > 40 cigarettes per day  20-39 cigarettes per day  1-19 cigarettes per day  Nonsmoker | Birthweight < 2500 grams: Yes  No |
| Early entry into prenatal care (yes v. no) |
| Neighborhood income level |

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8. Binary Logistic Regression – Hybrid Model
9. Which statistical approach(es) would be appropriate for analyzing the following data:

|  |  |
| --- | --- |
| Explanatory/Independent Variable(s) | Outcome/Dependent Variable |
| Maternal Smoking: Smoker  Nonsmoker | Birthweight: <1500 grams  1500-2499 grams  2500+ grams |

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| Explanatory/Independent Variable(s) | Outcome/Dependent Variable |
| Maternal Smoking : Smoker  Nonsmoker | Birthweight in Grams |
| Early entry into prenatal care (yes v. no) |
| Neighborhood income level |

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| Explanatory/Independent Variable(s) | Outcome/Dependent Variable |
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| Nonsmoker |  |

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9. Which statistical approach(es) would be appropriate for analyzing the following data:

|  |  |
| --- | --- |
| Explanatory/Independent Variable(s) | Outcome/Dependent Variable |
| # cigarettes smoked per day during pregnancy | Birthweight < 2500 grams: Yes  No |
| Early entry into prenatal care (yes v. no) |
| Maternal weight gain during pregnancy in pounds |

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| Explanatory/Independent Variable(s) | Outcome/Dependent Variable |
| # cigarettes smoked per day during pregnancy | Cases: <2500 grams  Controls: 2500+ grams |
| Maternal age (years) |

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| --- | --- |
| Explanatory/Independent Variable(s) | Outcome/Dependent Variable |
| Maternal Smoking: > 40 cigarettes per day  20-39 cigarettes per day  1-19 cigarettes per day  Nonsmoker | Birthweight: < 1000 grams  1000-1999  2000-2999  3000-3999  4000-4999  >=5000 |
| Early entry into prenatal care (yes v. no) |
| Maternal age (years) |

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| --- | --- |
| Explanatory/Independent Variable(s) | Outcome/Dependent Variable |
| # cigarettes smoked per day during pregnancy | Birthweight < 2500 grams: Yes  No |
| Early entry into prenatal care (yes v. no) |
| Maternal weight gain during pregnancy in pounds  Mother ID (multiple births per mother) |

1. Ordinary Least Squares Regression – Fixed Effects
2. Binary Logistic Regression – Fixed Effects
3. Log Binomial Regression
4. Cumulative or Generalized Logit
5. Ordinary Least Squares Regression –Random Effects/GEE
6. Ordinary Least Squares Regression –Hybrid Model
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8. Binary Logistic Regression – Hybrid Model